

Gene Expression Database (GXD) Tutorial
International Mouse Genome Conference
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GXD is integrated with Mouse Genome Informatics (MGI), located at this address:

www.informatics.jax.org

At the MGI home page, find the Search Menus list and click on Gene Expression. Click the link to Mouse Anatomical Dictionary Browser.

- Type 'eye' in the text box, and leave Developmental Stages at the default value, ANY.
- Click on the first (earliest) occurrence of eye in the anatomical dictionary, and look up the expression results associated with that structure by following the link 'show all'.
- Look up the expression **result details** for *Pax6* assay **MGI:2148277**. This query may take some time, so please be patient.
- Follow the link that shows image data for expression in the eye at embryonic day 8 (Theiler stage 12) in wild-type embryos.

To find out more about *Pax6*, click on *Pax6* in the index above the image.

- Where does *Pax6* map in the mouse genome?
- Is there a human homolog? Where does it map? Look up the comparative map.

Click again on *Pax6* to go back to the *Pax6* detail page.

- Click on 'All Phenotypic Alleles' for *Pax6*.
- Click on the link to view the details for the *Pax6*^{Sey} allele.
- What mouse phenotypes are associated with this specific *Pax6* allele?
- What are the relationships between this mouse *Pax6* allele and human diseases?
- For what genes has expression been studied in this mutant?

Return to the *Pax6* Gene Detail page.

- What Gene Ontology (GO) terms are associated with *Pax6*?
- *Pax6* is a transcription factor. On the side bar under Search Categories, click on ‘Expression’ and use the Gene Expression Data query form to find out which genes involved in the biological process ‘signal transduction’ are expressed in the eye of *Pax6* mutant mice.

On the side bar, click on ‘Expression’ again, and this time use the Gene Expression Data Expanded query form. Notice that you may compare expression in different anatomical structures or developmental stages in the Expression section of this query form.

- Type *Pax6* in the Gene Symbol/Name text box.
- Type the name of an anatomical structure, such as ‘eye’, in the first text box.
- Type the name of a second anatomical structure, such as ‘heart’, in the second text box. Select the radio button next to the phrase “AND NOT detected or analyzed in”.
- This search returns all database records for which no expression of *Pax6* was detected in ‘heart’, as well as those records for which *Pax6* expression was not analyzed in ‘heart’. To retrieve only those records demonstrating no expression of *Pax6* in heart tissue, leave the radio button on the default value, “AND NOT detected in”.

MGI has made available three out-of-print books in mouse biology. These books are:

Mouse Genetics by Lee Silver
The Coat Colors of Mice by Willys K. Silvers
The Anatomy of the Laboratory Mouse by Margaret J. Cook

You can find these books by clicking the link to ‘Tools and Links’.

For questions or assistance with Mouse Genome Informatics, please contact MGI User Support by e-mail at mgi-help@informatics.jax.org, by phone at 207-288-6445 or by clicking the User Support link at the bottom of our web pages.